Empowered by Innovation

NEC EXPRESS5800/GT110d
Configuration Guide

Introduction

This document contains product and configuration information that will enable you to configure your system. The guide will ensure fast and proper configuration of your NEC EXPRESS5800 server.

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NEC Corporation

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Technical Specification

Key Features

- 26 liter compact chassis
- High performance with the latest Intel® Xeon® processor E3-1200 series
- Up to 32 GB of high speed DDR3-1333 memory
- Full manageability by integrated EXPRESSSCOPE Engine 3
- Whisper quiet 35dB operation at maximum configuration

Specification

Model		GT110d	
Part Number		N8100-1738F	
Processor	**Type**	Intel® Pentium® processor G630	Intel® Xeon® processor E3-1220
	Clock Speed	2.70 GHz	3.10 GHz
	Number of Processors	1	
	Cache	3 MB	8 MB
	Cores and Threads	2C / 2T	4C / 4T
Chipset		Intel® C204 Chipset	
Memory	**Type**	DDR3-1333 ECC Unbuffered DIMM	
	Standard Capacity	0 MB	
	Maximum Capacity	32 MB (4 x 8 GB)	
Internal Storage	**Standard Capacity**	0 GB	
	Maximum Capacity	3.5-inch SATA : 12 TB (4 x 3 TB) 2.5-inch SAS : [1] 1.2 TB (4 x 300 GB) 2.5-inch SATA : [1] 4 TB (4 x 1 TB) 2.5-inch SSD : [1] 400 GB (4 x 100 GB)	
	Disk Controller	SATA : 3Gb/s (Integrated) SAS: 6Gb/s (Optional)	
	RAID	SATA : RAID 0/1/10 [2 3] (Standard), RAID 5/6 (Optional) SAS : RAID 0/1/5/6/10 (Optional)	
	Hot Plug	-	
	Optical Disk Drive	Slim DVD-ROM	
	5-inch Media Bays [free]	2 [2]	
	Disk Drive Bays [free]	2.5-inch : [1] 4 [4] 3.5-inch: 4 [4]	
Expansion Slots [free]		Total: 4 slots available 1 [1] x PCIe 2.0 x16 (x16 connector) 2 [2] x PCIe 2.0 x4 (x8 connector) 1 [1] x 32-bit/33 MHz PCI	
Video Controller (VRAM)		Integrated in Server Management Controller (32MB)	
Interfaces		1 x VGA (15-pin mini D-sub,1x rear) 1 x Serial (9-pin mini D-sub, RS232-C, Serial A, 1 x rear) 8x USB2.0 (2 x front, 4 x rear, 2 x internal) 2x 1000BASE-T LAN connector (1000BASE-T / 100BASE-TX / 10BASE-T, RJ-45, 2 x rear) 1 x Management LAN connector (100BASE-TX / 10BASE-T, RJ-45, 1 x rear)	

Model		GT110d	
Server Management		EXPRESSSCOPE Engine 3	
System fan		Standard	
Power Supply		1 x 400 Watt 80 PLUS® Gold certified non-Hot plug PSU 100-240 VAC ± 10% 50 / 60 Hz ± 3 Hz	
Power Consumption	(100VAC, Max. config, Idling)	114 VA / 112 Watt	132 VA / 129 Watt
	(100VAC, Max. config, Operating)	174 VA / 170 Watt	239 VA / 237 Watt
Acoustical Noise (Sound Pressure Level) [4]	Minimum Config.	27.9 dB	27.2 dB
	Maximum Config.	36.8 dB	36.7 dB
Dimensions (W x D x H)		175 x 418 x 364 mm / 6.9 x 16.5 x 14.3 in (4U)	
Weight (Minimum / Maximum)		14 kg / 17.5 kg, 30.84 lbs. / 38.58 lbs.	
Temperature, Relative Humidity (non-condensing)		Operating: 10° to 40° C / 50° to 104° F, 20 to 80% Non-Operating: -10° to 55° C / 14° to 131° F, 20 to 80%	
Regulatory and Safety		FCC, CE, BSMI, CCC, UL, CB, RoHS, WEEE	
Operating Systems		Microsoft® Windows Server® 2003 R2, Standard Edition SP2 or later Microsoft® Windows Server® 2003 R2, Standard x64 Edition SP2 or later Microsoft® Windows Server® 2008 Standard Microsoft® Windows Server® 2008 Standard (x64) Microsoft® Windows Server® 2008 Enterprise Microsoft® Windows Server® 2008 Enterprise (x64) Microsoft Windows Server 2008 R2 Standard Microsoft Windows Server 2008 R2 Enterprise Red Hat Enterprise Linux 5.6 or later [4] Red Hat Enterprise Linux 5.6 or later (EM64T) [4] Red Hat Enterprise Linux 6.1 or later [4] Red Hat Enterprise Linux 6.1 or later (EM64T) [4] VMware ESXi™ 5.0	

1 To install a 2.5-inch hard drive and a SSD, an optional 2.5-inch HDD cage is required.

2 On-board SATA RAID controller is supported only on Windows operating systems.

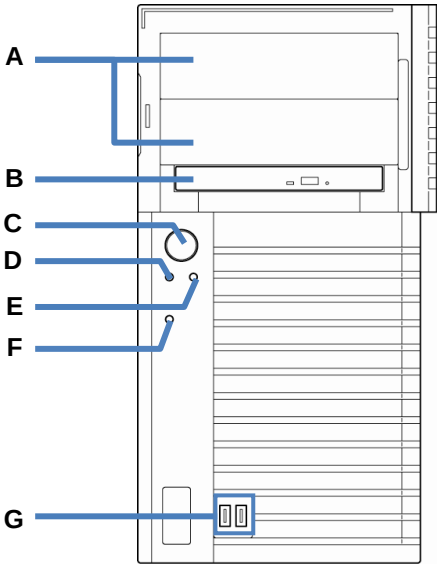
3 On-board SATA RAID Controller does not support RAID 10 configured with 2TB and 3TB HDDs.

4 Noise emission was measured in accordance with ISO 7779. The actual value may vary by the operating environment.

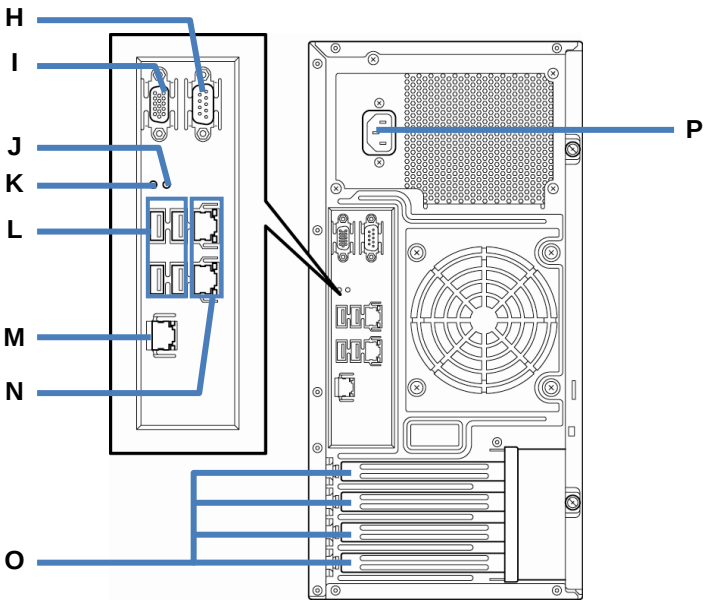
5 For Linux support, contact our sales representative or go to the NEC website at: http://www.nec.com/global/prod/express/linux/index.html

External Views

Front and Rear Views



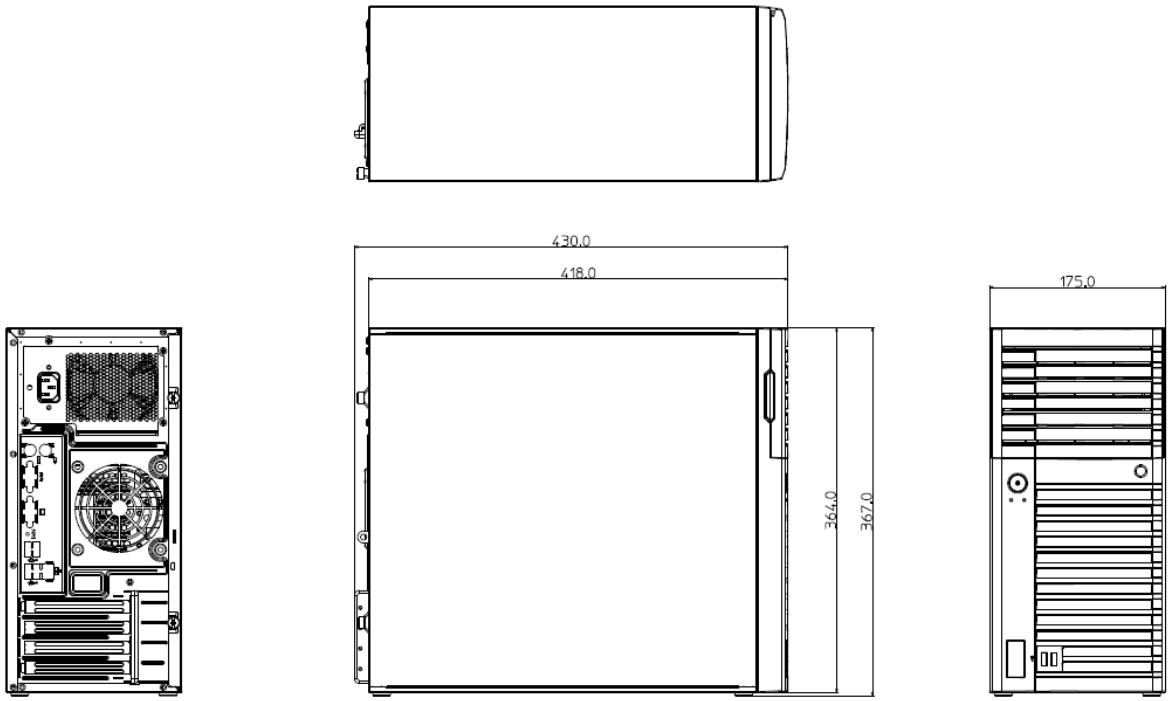
Front view



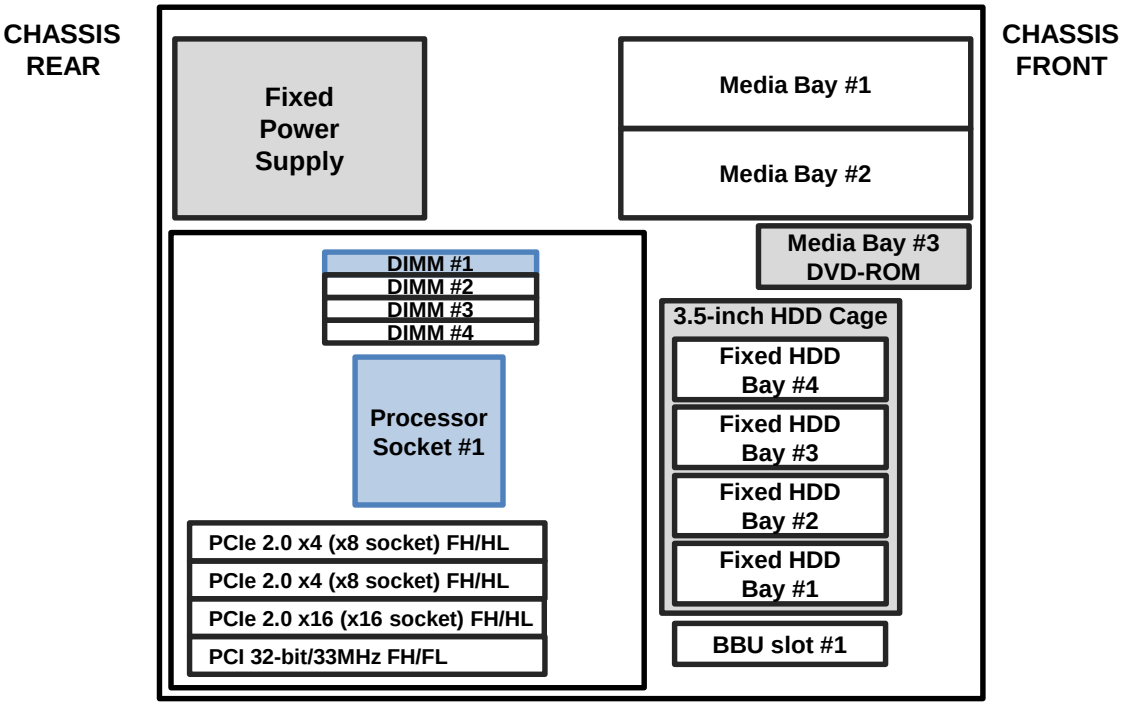
Rear view

Legend			
A.	5-inch Media Bay	**H.**	Serial Port Connector
B.	Optical Disk Drive	**I.**	VGA Connector
C.	Power Button	**J.**	BMC Reset Switch
D.	Power LED	**K.**	Dump (NMI) Switch
E.	Hard Drive Activity LED	**L.**	USB Connectors
F.	System Status LED	**M.**	Management LAN Connector
G.	USB Connectors	**N.**	Data LAN Connectors
		O.	PCI Slots
		P.	AC Inlet

Dimensions (mm)



Configuration Diagram



Server Configuration

1 Base Models

Product Name / Description	Part Number
NEC EXPRESS5800/GT110d Server no processor, no RAM, no HDD Including: 1x Slim DVD-ROM drive, 3.5-inch HDD Cage, EXPRESSBUILDER DVD	N8100-1738F

NOTE:

- The base model must be ordered with a processor kit.

2 Processor

Available sockets: 1

Product Name / Description	Part Number
Processor Kit (2C/G630) Intel® Pentium® Processor G630 (2.70GHz / 2C-2T / 3MB), including heat sink	N8101-527F
Processor Kit (4C/E3-1220) Intel® Xeon® Processor E3-1220 (3.10 GHz / 4C-4T / 8 MB) , including heat sink	N8101-500F

NOTE:

- One processor kit from above must be installed.
- The processor kit must be ordered with the base model.

3 Memory

Available slots: 4

Product Name / Description	Part Number
1GB Memory Kit 1GB (1x 1 GB) DDR3-1333 ECC Unbuffered DIMM	N8102-415F
2GB Memory Kit 2GB (1x 2 GB) DDR3-1333 ECC Unbuffered DIMM	N8102-416F
4GB Memory Kit 4GB (1x 4 GB) DDR3-1333 ECC Unbuffered DIMM	N8102-417F
8GB Memory Kit 8GB (1x 8 GB) DDR3-1333 ECC Unbuffered DIMM	N8102-418F

NOTE:

- Minimum one memory kit must be installed.
- It is recommended to install two identical memory kits for dual-channel symmetric configuration to increase memory transfer speed.
- Actual DIMM speed sets to 1066 MHz when you choose Pentium Processor.

Maximum Available Memory

See the table below for the maximum memory size that you can actually use on your system.

The maximum available memory is less than the maximum physical memory supported by your system because some chipsets require PCI resource space of about 750MB. PCI resource requirements vary depending on the type and the number of PCI cards you are using.

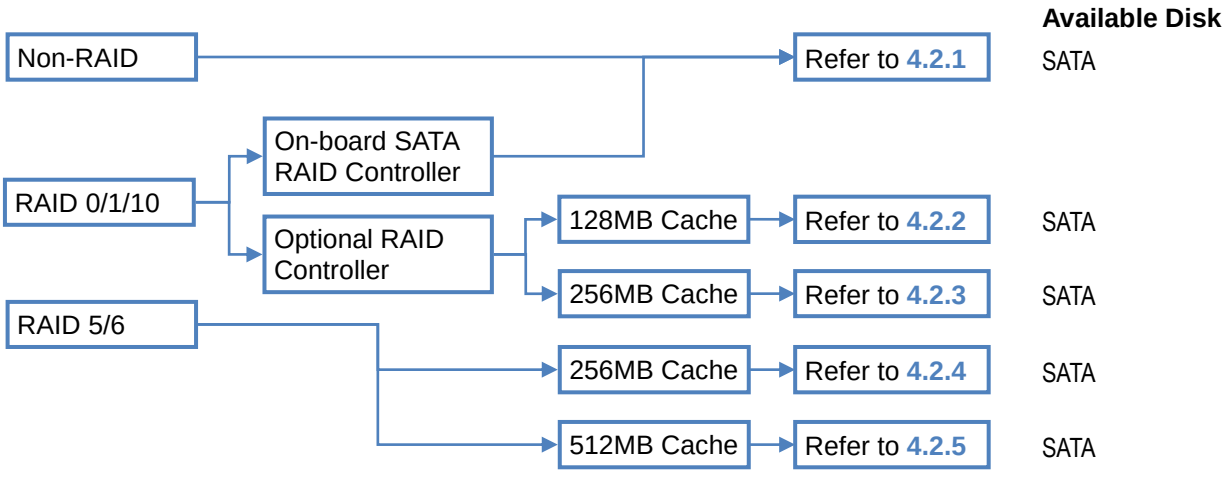
Maximum memory size supported by OS		Maximum available memory
4 GB	Microsoft Windows Server 2003 R2, Standard Edition Microsoft Windows Server 2008 Standard	**4 GB(HW-DEP enabled)** **App. 3.3 GB (HW-DEP disabled)**
32 GB	Microsoft Windows Server 2003 R2, Standard x64 Edition Microsoft Windows Server 2008 Standard (x64) Microsoft Windows Server 2008 R2 Standard (x64)	**32 GB**
64 GB	Microsoft Windows Server 2003 R2, Enterprise Edition Microsoft Windows Server 2008 Enterprise	**32 GB**
1 TB	Microsoft Windows Server 2003 R2, Enterprise x64 Edition	**32 GB**
2 TB	Microsoft Windows Server 2008 Enterprise (x64) Microsoft Windows Server 2008 R2 Enterprise (x64)	**32 GB**
16 GB	Red Hat Enterprise Linux 5 Red Hat Enterprise Linux 6	**16 GB**
256 GB	Red Hat Enterprise Linux 5 (EM64T)	**32 GB**
2 TB	Red Hat Enterprise Linux 6 (EM64T)	**32 GB**

4 Internal Hard Disk Drives

4.1 RAID Configuration

Refer to the section in accordance with your disk form factor and RAID configuration.

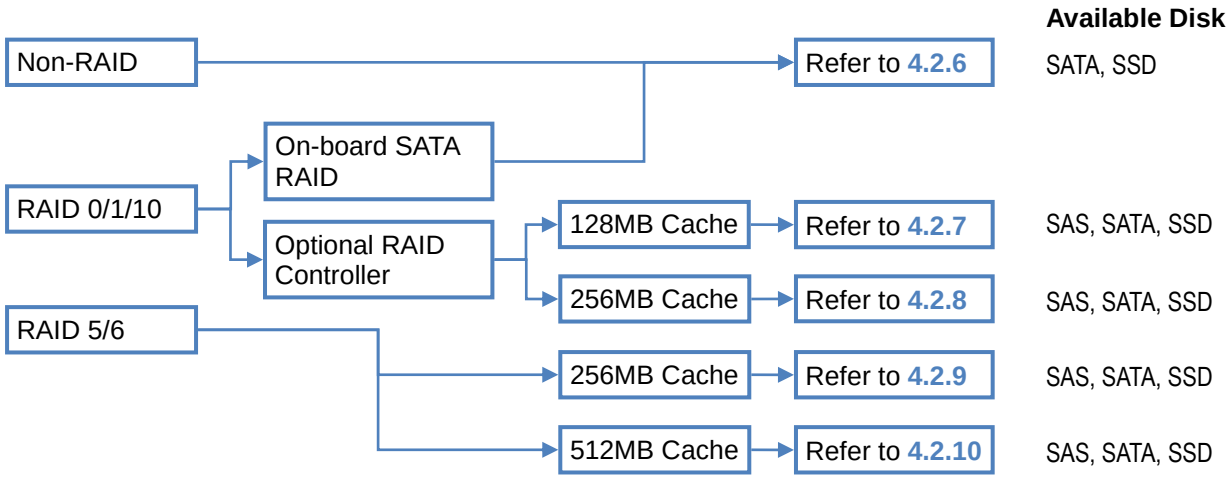
4.1.1 3.5-inch Drive



NOTE:

- On-board SATA RAID controller is supported only on Windows operating systems. An optional RAID controller is required to configure RAID array for other operating systems.
- On-board SATA RAID Controller does not support RAID 10 configured with 2TB and 3TB HDDs.
- All hard drives within a RAID array should be of the same capacity.
- An optional RAID controller occupies one PCI slot.

4.1.2 2.5-inch Drive



NOTE:

- On-board SATA RAID controller is supported only on Windows operating systems. An optional RAID controller is required to configure RAID array for other operating systems.
- Mixing SAS and SATA hard drives in the same system is not supported.
- Hot plug insertion/removal is not supported with the on-board SATA non-RAID controller.
- An optional RAID controller occupies one PCI slot.

4.2 Internal Drive Configuration

4.2.1 3.5-inch Drive with On-board SATA Controller

Category	Product Name / Description	Part Number
Storage Controller	**On-board SATA Controller** 4 x SATA ports, RAID 0/1/10 capable	(Standard)
Cable	**Internal SATA Cable** 1x SATA to 1x SATA, 4 sets	(Standard)
HDD Cage	**3.5-inch HDD cage** 4 x 3.5-inch non hot plug (fixed) hard drive bays	(Standard)
HDD **4 slots available**	**160GB HDD** 1 x 160 GB, 3.5-inch, SATA2, 7,200 rpm	N8150-372
	250GB HDD 1 x 250 GB, 3.5-inch, SATA2, 7,200 rpm	N8150-373
	500GB HDD 1 x 500 GB, 3.5-inch, SATA2, 7,200 rpm	N8150-343
	1TB HDD 1 x 1 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-260
	2TB HDD 1 x 2 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-284
	3TB HDD 1 x 3 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-339

NOTE:

- On-board SATA RAID controller is supported only on Windows operating systems. An optional RAID controller is required to configure RAID array for other operating systems.
- On-board SATA RAID Controller does not support RAID 10 configured with 2TB and 3TB HDDs.
- 3 TB HDDs are not supported with the on-board SATA non-RAID controller.
- All hard drives within a RAID array should be of the same capacity.

4.2.2 3.5-inch Drive with RAID 0/1 Controller with 128 MB Cache

Category	Product Name / Description	Part Number
Storage Controller Required	**RAID Controller (128MB, RAID 0/1)** Promise SuperTrak TX8760T-128 RAID 0/1/10, 128MB, Int. 8, PCIe 2.0 x8, SAS 6Gb/s, SATA 3Gb/s, LP / FH	N8103-128
RAID BBU Recommended	**RAID Battery Backup Unit** for Promise SuperTrak EX8760T	N8103-141
Cable Required	**Internal SAS/SATA Cable** 1x mini-SAS to 4x fixed SAS	K410-252(00)
HDD Cage	**3.5-inch HDD cage** 4 x 3.5-inch non hot plug (fixed) hard drive bays	(Standard)
HDD 4 slots available	**160GB HDD** 1 x 160 GB, 3.5-inch, SATA2, 7,200 rpm	N8150-372
	250GB HDD 1 x 250 GB, 3.5-inch, SATA2, 7,200 rpm	N8150-373
	500GB HDD 1 x 500 GB, 3.5-inch, SATA2, 7,200 rpm	N8150-343
	1TB HDD 1 x 1 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-260
	2TB HDD 1 x 2 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-284
	3TB HDD 1 x 3 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-339

NOTE:

- All hard drives within a RAID array should be of the same capacity.

4.2.3 3.5-inch Drive with RAID 0/1 Controller with 256 MB Cache

Category	Product Name / Description	Part Number
Storage Controller Required	**RAID Controller (256MB, RAID 0/1)** LSI MegaRAID SAS 9264-8i RAID 0/1, 256MB, Int. 8, PCIe 2.0 x8, SAS 6Gb/s, SATA 3Gb/s, LP / FH	N8103-129
RAID BBU Recommended	**RAID Battery Backup Unit** for LSI MegaRAID SAS 9264	N8103-121
Cable Required	**Internal SAS/SATA Cable** 1x mini-SAS to 4x fixed SAS	K410-252(00)
HDD Cage	**3.5-inch HDD cage** 4 x 3.5-inch non hot plug (fixed) hard drive bays	(Standard)
HDD 4 slots available	**160GB HDD** 1 x 160 GB, 3.5-inch, SATA2, 7,200 rpm	N8150-372
	250GB HDD 1 x 250 GB, 3.5-inch, SATA2, 7,200 rpm	N8150-373
	500GB HDD 1 x 500 GB, 3.5-inch, SATA2, 7,200 rpm	N8150-343
	1TB HDD 1 x 1 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-260
	2TB HDD 1 x 2 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-284

NOTE:

- All hard drives within a RAID array should be of the same capacity.

4.2.4 3.5-inch Drive with RAID 5/6 Controller with 256 MB Cache

Category	Product Name / Description	Part Number
Storage Controller Required	**RAID Controller (256MB, RAID 0/1/5/6)** LSI MegaRAID SAS 9264-8i RAID 0/1/5/6/10/50, 256MB, Int. 8, PCIe 2.0 x8, SAS 6Gb/s, SATA 3Gb/s, LP / FH	N8103-130
RAID BBU Recommended	**RAID Battery Backup Unit** for LSI MegaRAID SAS 9264	N8103-121
Cable Required	**Internal SAS/SATA Cable** 1x mini-SAS to 4x fixed SAS	K410-252(00)
HDD Cage	**3.5-inch HDD cage** 4 x 3.5-inch non hot plug (fixed) hard drive bays	(Standard)
HDD 4 slots available	**160GB HDD** 1 x 160 GB, 3.5-inch, SATA2, 7,200 rpm	N8150-372
	250GB HDD 1 x 250 GB, 3.5-inch, SATA2, 7,200 rpm	N8150-373
	500GB HDD 1 x 500 GB, 3.5-inch, SATA2, 7,200 rpm	N8150-343
	1TB HDD 1 x 1 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-260
	2TB HDD 1 x 2 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-284

NOTE:

- All hard drives within a RAID array should be of the same capacity.

4.2.5 3.5-inch Drive with RAID 5/6 Controller with 512 MB Cache

Category	Product Name / Description	Part Number
Storage Controller Required	**Raid Controller (512MB, RAID0/1/5/6)** Promise SuperTrak EX8760T-512 RAID 0/1/5/6/10/50, 512MB, Int. 8, PCIe 2.0 x8, SAS 6Gb/s, SATA 3Gb/s, LP / FH	N8103-134
RAID BBU Recommended	**RAID Battery Backup Unit** for Promise SuperTrak EX8760T	N8103-141
Cable Required	**Internal SAS/SATA Cable** 1x mini-SAS to 4x fixed SAS	K410-252(00)
HDD Cage	**3.5-inch HDD cage** 4 x 3.5-inch non hot plug (fixed) hard drive bays	(Standard)
HDD 4 slots available	**160GB HDD** 1 x 160 GB, 3.5-inch, SATA2, 7,200 rpm	N8150-372
	250GB HDD 1 x 250 GB, 3.5-inch, SATA2, 7,200 rpm	N8150-373
	500GB HDD 1 x 500 GB, 3.5-inch, SATA2, 7,200 rpm	N8150-343
	1TB HDD 1 x 1 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-260
	2TB HDD 1 x 2 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-284
	3TB HDD 1 x 3 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-339

NOTE:

- All hard drives within a RAID array should be of the same capacity.

4.2.6 2.5-inch Drive with On-board SATA Controller

Category		Product Name / Description	Part Number
Storage Controller		**On-board SATA Controller** 4 x SATA ports, RAID 0/1/10 capable	(Standard)
Cable		**Internal SATA Cable** 1x SATA to 1x SATA, 4 sets	(Standard)
HDD Cage Required		**2.5-inch HDD cage** 4 x 2.5-inch non hot plug (fixed) hard drive bays	N8154-38
HDD 4 slots available	**SATA**	**160GB HDD** 1 x 160 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-316
		500GB HDD 1 x 500 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-317
		1TB HDD 1 x 1 TB, 2.5-inch, SATA2, 7,200 rpm	N8150-335
	SSD	**100GB SSD** 1 x 100 GB, 2.5-inch, SATA2	N8150-708

NOTE

- On-board SATA RAID controller is supported only on Windows operating systems. An optional RAID controller is required to configure RAID array for other operating systems.
- Hot plug insertion/removal is not supported with the on-board SATA non-RAID controller..
- All hard drives within a RAID array should be of the same capacity.

4.2.7 2.5-inch Drive with RAID 0/1 Controller with 128 MB Cache

Category		Product Name / Description	Part Number
Storage Controller Required		**RAID Controller (128MB, RAID 0/1)** Promise SuperTrak TX8760T-128 RAID 0/1, 128MB, Int. 8, PCIe 2.0 x8, SAS 6Gb/s, SATA 3Gb/s, LP / FH	N8103-128
RAID BBU Recommended		**RAID Battery Backup Unit** for Promise SuperTrak EX8760T	N8103-141
Cable Required		**Internal SAS/SATA Cable** 1x mini-SAS to 4x fixed SAS	K410-251(00)
HDD Cage Required		**2.5-inch HDD cage** 4 x 2.5-inch non hot plug (fixed) hard drive bays	N8154-38
HDD 4 slots available	**SAS**	**146.5GB HDD** 1 x 146.5 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-380
		300GB HDD 1 x 300 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-381
	SATA	**160GB HDD** 1 x 160 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-316
		500GB HDD 1 x 500 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-317
		1TB HDD 1 x 1 TB, 2.5-inch, SATA2, 7,200 rpm	N8150-335
	SSD	**100GB SSD** 1 x 100 GB, 2.5-inch, SATA2	N8150-708

NOTE:

- All hard drives within a RAID array should be of the same capacity and rotation speed.
- Mixing SAS and SATA hard drives in the same system is not supported.

4.2.8 2.5-inch Drive with RAID 0/1 Controller with 256 MB Cache

Category		Product Name / Description	Part Number
Storage Controller Required		**RAID Controller (256MB, RAID 0/1)** LSI MegaRAID SAS 9264-8i RAID 0/1, 256MB, Int. 8, PCIe 2.0 x8, SAS 6Gb/s, SATA 3Gb/s, LP / FH	N8103-129
RAID BBU Recommended		**RAID Battery Backup Unit** for LSI MegaRAID SAS 9264	N8103-121
Cable Required		**Internal SAS/SATA Cable** 1x mini-SAS to 4x fixed SAS	K410-251(00)
HDD Cage Required		**2.5-inch HDD cage** 4 x 2.5-inch non hot plug (fixed) hard drive bays	N8154-38
HDD 4 slots available	**SAS**	**146.5GB HDD** 1 x 146.5 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-380
		300GB HDD 1 x 300 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-381
	SATA	**160GB HDD** 1 x 160 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-316
		500GB HDD 1 x 500 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-317
		1TB HDD 1 x 1 TB, 2.5-inch, SATA2, 7,200 rpm	N8150-335
	SSD	**100GB SSD** 1 x 100 GB, 2.5-inch, SATA2	N8150-708

NOTE:

- All hard drives within a RAID array should be of the same capacity and rotation speed.
- Mixing SAS and SATA hard drives in the same system is not supported.

4.2.9 2.5-inch Drive with RAID 5/6 Controller with 256 MB Cache

Category		Product Name / Description	Part Number
Storage Controller Required		**RAID Controller (256MB, RAID 0/1/5/6)** LSI MegaRAID SAS 9264-8i RAID 0/1/5/6/10/50, 256MB, Int. 8, PCIe 2.0 x8, SAS 6Gb/s, SATA 3Gb/s, LP / FH	N8103-130
RAID BBU Recommended		**RAID Battery Backup Unit** for LSI MegaRAID SAS 9264	N8103-121
Cable Required		**Internal SAS/SATA Cable** 1x mini-SAS to 4x fixed SAS	K410-251(00)
HDD Cage Required		**2.5-inch HDD cage** 4 x 2.5-inch non hot plug (fixed) hard drive bays	N8154-38
HDD 4 slots available	**SAS**	**146.5GB HDD** 1 x 146.5 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-380
		300GB HDD 1 x 300 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-381
	SATA	**160GB HDD** 1 x 160 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-316
		500GB HDD 1 x 500 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-317
		1TB HDD 1 x 1 TB, 2.5-inch, SATA2, 7,200 rpm	N8150-335
	SSD	**100GB SSD** 1 x 100 GB, 2.5-inch, SATA2	N8150-708

NOTE:

- All hard drives within a RAID array should be of the same capacity and rotation speed.
- Mixing SAS and SATA hard drives in the same system is not supported.

4.2.10 2.5-inch Drive with RAID 5/6 Controller with 512 MB Cache

Category		Product Name / Description	Part Number
Storage Controller Required		**Raid Controller (512MB, RAID0/1/5/6)** Promise SuperTrak EX8760T-512 RAID 0/1/5/6/10/50, 512MB, Int. 8, PCIe 2.0 x8, SAS 6Gb/s, SATA 3Gb/s, LP / FH	N8103-134
RAID BBU Recommended		**RAID Battery Backup Unit** for Promise SuperTrak EX8760T	N8103-141
Cable Required		**Internal SAS/SATA Cable** 1x mini-SAS to 4x fixed SAS	K410-251(00)
HDD Cage Required		**2.5-inch HDD cage** 4 x 2.5-inch non hot plug (fixed) hard drive bays	N8154-38
HDD 4 slots available	**SAS**	**146.5GB HDD** 1 x 146.5 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-380
		300GB HDD 1 x 300 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-381
	SATA	**160GB HDD** 1 x 160 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-316
		500GB HDD 1 x 500 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-317
		1TB HDD 1 x 1 TB, 2.5-inch, SATA2, 7,200 rpm	N8150-335
	SSD	**100GB SSD** 1 x 100 GB, 2.5-inch, SATA2	N8150-708

NOTE:

- All hard drives within a RAID array should be of the same capacity and rotation speed.
- Mixing SAS and SATA hard drives in the same system is not supported.

5 Internal Optical Drive

Available Bays: 1

Product Name / Description	Part Number
Slim DVD-ROM drive	(Standard)
Internal DVD Super Multi Drive Slim DVD Super Multi drive, not including writing software	N8151-104F

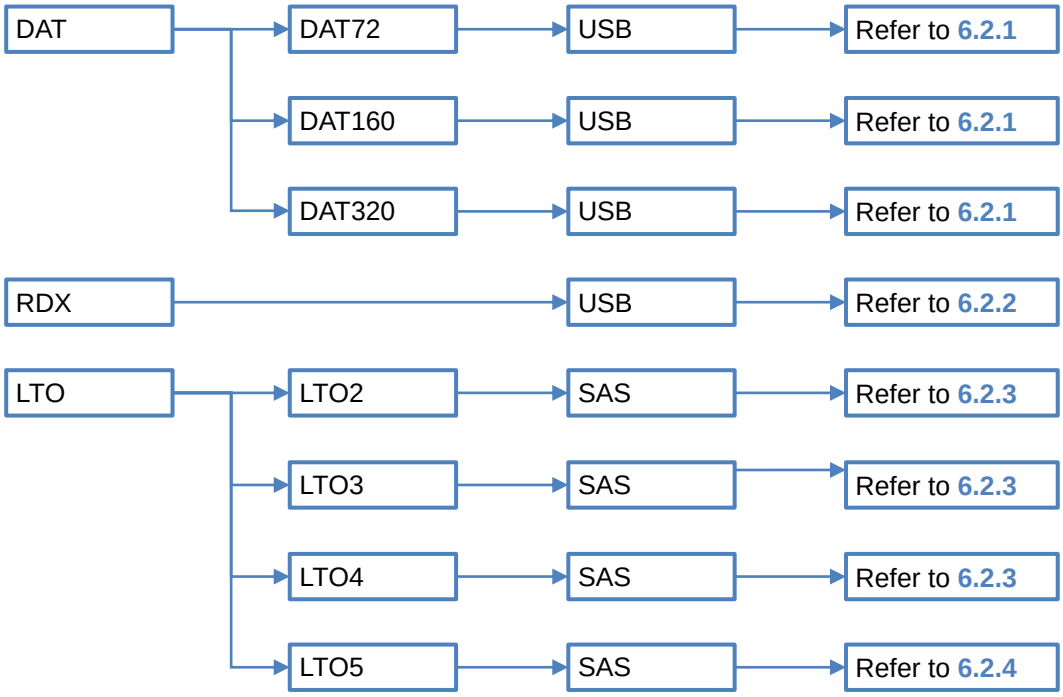
NOTE:

- To install internal DVD Super Multi drive, the standard DVD-ROM drive needs to be removed.

6 Internal Tape / RDX Drives

6.1 Tape / RDX Drive Selection

Refer to the section in accordance with your type of tape drives.



NOTE:

- The same combination of a drive and host interface cannot be installed multiple times

6.2 Tape / RDX Configuration

6.2.1 DAT / USB

Category	Product Name / Description	Part Number
Controller	**Internal USB Controller** 1 x USB port or 1 x pin-header for front panel USB	(Standard)
Cable **Required**	**Internal USB Cable** 1x Internal USB to 1x USB device	K410-254(00)
	Internal USB Cable 1x pin-header for front panel USB to 1x USB device and 1x front panel USB port **NOTE**: The cable is required to install internal flash memory and USB tape drive. A USB tape drive occupies one front USB port.	K410-245(00)
Drive **2 bays available**	**Internal DAT (USB)** DDS3 / DDS4 / DAT72, Native capacity 36 GB **NOTE**: DDS1 / DDS2 format are not supported	N8151-69
	Internal DAT (USB) DDS4 / DAT72 / DAT160, Native capacity 80 GB **NOTE**: DDS1 / DDS2 /DDS3 format are not supported	N8151-78
	Internal DAT (USB) DAT160 / DAT 320, Native capacity 160 GB **NOTE**: DDS1 / DDS2 / DDS3 / DDS4 / DAT72 / WORM DAT160 format are not supported	N8151-99

6.2.2 RDX

Category	Product Name / Description	Part Number
Controller	**Internal USB Controller** 1 x USB port or 1 x pin-header for front panel USB	(Standard)
Cable **Required**	**Internal USB Cable** 1x Internal USB to 1x USB device	K410-254(00)
	Internal USB Cable 1x pin-header for front panel USB to 1x USB device and 1x front panel USB port **NOTE**: The cable is required to install internal flash memory and USB tape drive. A USB tape drive occupies one front USB port.	K410-245(00)
Drive **2 bays available**	**Internal RDX (USB)**	N8151-86

6.2.3 LTO / SAS (1)

Category	Product Name / Description	Part Number
Controller **Required**	**SAS Controller** LSI SAS3442E-R Host Bus Adapter 3Gbps SAS, Int. 4, Ext. 4, SFF-8484 / SFF8470, PCIe x8, LP/FH	N8103-104A
Cable **Required**	**Internal SAS Cable** 1x SFF-8484 SAS to 2x SFF-8482 SAS	K410-173(00)
Drive **2 bays available**	**Internal LTO (SAS)** LTO2, Native capacity 200 GB	N8151-59
	Internal LTO (SAS) LTO3, Native capacity 400 GB	N8151-102
	Internal LTO (SAS) LTO4, Native capacity 800 GB	N8151-90

6.2.4 LTO / SAS (2)

Category	Product Name / Description	Part Number
Controller **Required**	**SAS Controller** LSI ISAS9212-4i4 Host Bus Adapter 6Gbps SAS, Int. 4, Ext. 4, 7-pin SATA / SFF-8088, PCIe 2.0 x8, LP/FH	N8103-142
Cable **Required**	**Internal SAS Cable** 1x 7-pin Single SATA to 1x SFF-8482 SAS	K410-217(00)
Drive **2 bays available**	**Internal LTO (SAS)** LTO5, Native capacity 1.5 TB	N8151-103
	Internal LTO (SCSI) LTO3, Native capacity 400 GB	N8151-76

7 Internal Flash Memory

Available socket: 1

Product Name / Description	Part Number
Internal Flash Memory Internal flash memory to enable software and tools in the EXPRESSBUILDR DVD without DVD media **NOTE:** Before use, software and tools must be copied from the EXPRESSBUILDER DVD to the flash memory. The following operations can be performed with the flash memory: - Installation of Windows server with express setup - Installation of Starter Pack—the package of NEC qualified drivers and system setting tools - Installation of NEC ESMPRO Agent and Universal RAID Utility - Performance of the Test and Diagnosis Tool	N8115-05

8 PCI Card

8.1 LAN / SAS Controller

Category	Product Name / Description	Part Number
LAN	**1000BASE-T Adapter (2ch)** Broadcom NetXtreme II 5709 Dual port Network Interface Card PCIe x4, LP / FH **NOTE:** Teaming and bonding features across the standard LAN and the LAN controller are supported on Windows Server 2003R2 / 2008 / 2008R2 and Red Hat Linux 5.x Operating system. Up to 2 teams per system and 2 ports per team is supported in the teaming and bonding feature.	N8104-134
SAS	**SAS Controller** LSI SAS3442E-R Host Bus Adapter 3Gbps SAS, Int. 4 / Ext. 4, SFF-8484 / SFF8470, PCIe x8, LP/FH	N8103-104A
	SAS Controller LSI ISAS9212-4i4 Host Bus Adapter 6Gbps SAS, Int. 4 / Ext. 4, 7-pin SATA / SFF-8088, PCIe 2.0 x8, LP / FH	N8103-142

8.2 Serial Port Adapter

Product Name / Description	Part Number
Serial port adapter Serial port fixed to PCI bracket	N8117-01A

9 Other Add-in Components

9.1 Input Devices

Product Name / Description	Part Number
Keyboard and Mouse Pack (US) 1 x 104-keys White USB keyboard, 1 x USB White Optical Wheel Mouse	(Standard)

10 Add-on Components

10.1 Server Management License

The server integrates the EXPRESSSCOPE Engine 3 as standard. Refer to **Server Management** for the standard management features. For more extensive remote KVM and remote media features, choose the following kit.

Product Name / Description	Part Number
Remote KVM and Media License kit License for one server. Remote KVM and remote media are enabled regardless of OS status. Remote KVM: - Displays a graphics console on the web browser of the remote terminal (PC/server). - Controls keyboard and mouse via the remote terminals' web browser Remote media: Enables the user to use the CD / DVD / FD / Flash memory of the remote terminals (PC/server) as if accessing the local drives.	N8115-04

10.2 Rack Conversion Kit

The following rack conversion kit is required to install the server into a 19-inch rack system:

Product Name / Description	Part Number
Rack Conversion Kit Convert to 4U form factor	N8143-75

10.3 Flash FDD

Choose the Flash FDD if you need to prepare an alternative for a floppy drive.

Product Name / Description	Part Number
Flash FDD USB flash emulating USB floppy disk, Native capacity 1.44 MB	N8160-86

10.4 Medium and Cartridge

Category	Product Name	Drive supported	Part Number
RDX	RDX Cartridge (320GB)	N8151-86	N8152-26
	RDX Cartridge (500GB)	N8151-86	N8152-27
	RDX Cartridge (1TB)	N8151-86	N8152-33
DAT	DAT72(36GB) Medium 5 pack	N8151-69	N8152-08

References

Note for Ordering

Parts number provided may be needed to modify by country/region when you order the products.

For example, the operable parts number for N8100-1738F in EMEA is N8100-1730F-O, adding "-O", the country-specific identifier for EMEA, after the parts number.

Please consult our sales representative for your country identifier.

Server Management

The EXPRESSSCOPE Engine 3, integrated into the server, provides superior remote control and system management features listed in the table below.

		Standard	With Remote KVM and Media License kit
Hardware monitoring	Temperature/voltage/power/ fan /degeneration (memory/hard drive)	✓	✓
	Hardware event log collection	✓	✓
Boot monitoring	Booting, BIOS/POST stall, OS stall, shutdown	✓	✓
Alerting	HW error, Boot error and OS panic (by SNMP, E-Mail)	✓	✓
Remote KVM (via LAN)	POST/BIOS setup, DOS utility	✓	✓
	Panic screen, Boot screen	✓	✓
	Text-based screen (OS console)	✓	✓
	GUI-based screen (OS console)	-	✓
Remote control (via LAN)	Remote reset/power on-off/ dump	✓	✓
	Configure power capping setting	✓	✓
	Configure BIOS setting (items limited)	✓	✓
	OS shutdown	✓	✓
	Remote media (CD/DVD/FD)	-	✓
	Server Management Command Line Protocol (DMTF compliant)	✓	✓
	Remote control via Web browser (without dedicated app)	✓	✓
	Remote batch	✓	✓
	Scheduling (without UPS)	✓	✓
Maintenance	Save/restore BIOS/BMC setting to/from a dedicated flash memory	✓	✓
Others	Set automatic IP address via DNS/DHCP	✓	✓
Remote wakeup	Wake On LAN, Wake On Ring	✓	✓
Centralized management	Monitoring and control of multiple servers	✓	✓
Industry standard	IPMI	2.0	2.0

OS Support Matrix for PCI Cards

Part Number	Product Name	WS 2008R2	WS 2008	WS 2008 x64	WS 2003R2	WS 2003R2 x64	RHEL 5	RHEL 5 x64	RHEL 6	RHEL 6 x64	VMware ESXi 5.0
N8103-128	RAID controller (128MB, RAID 0/1)	✓	✓	✓	✓	✓	✓	✓	✓	✓	-
N8103-129	RAID controller (512MB, RAID 0/1/5/6)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N8103-130	RAID controller (256MB, RAID 0/1)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N8103-134	RAID controller (256MB, RAID 0/1/5/6)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N8103-104A	SAS Controller, 3 Gb/s	✓	✓	✓	✓	✓	✓	✓	✓	✓	-
N8103-142	SAS Controller, 6 Gb/s	✓	✓	✓	✓	✓	✓	✓	✓	✓	-
N8104-134	1000BASE-T Adapter	✓	✓	✓	✓	✓	✓	✓	✓	✓	-

Supporting PCI Cards and Installable Slots

Part Number	Product Name	Slots				Remarks
	Slot # :	#1	#2	#3	#4	
	PCI Slot:	x4	x4	x16	32-bit	
	Card height:	FH				
	Slot type:	x8	x8	x16	5V	
	Installable card length (mm) :	175	175	200	312	
N8103-128	RAID controller (128MB, RAID 0/1) [PCIe 2.0 x8]	✓	-	-	-	
N8103-134	RAID controller (512MB, RAID 0/1/5/6) [PCIe 2.0 x8]	✓	-	-	-	
N8103-129	RAID controller (256MB, RAID 0/1) [PCIe 2.0 x8]	✓	-	-	-	
N8103-130	RAID controller (256MB, RAID 0/1/5/6) [PCIe 2.0 x8]	✓	-	-	-	
N8103-104A	SAS controller [PCIe x8]	✓	-	✓	-	
N8103-142	SAS controller [PCIe 2.0 x8]	✓	-	✓	-	
N8104-134	1000BASE-T adapter(2ch) [PCIe x4]	✓	✓	✓	-	
N8117-01A	Serial port adapter	✓	✓	✓	✓	maximum 1

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For hard drive capacity measurements, 1 GB = 1 billion bytes. Actual formatted capacity is less.

Revision History

Revision	Date	Description
	February 13, 2012	**Discontinued products removed:** 160GB RDX Cartridge / N8152-20 640GB RDX Cartridge / N8152-30 **Part number changed:** 146.5GB SAS HDD / N8150-380 300GB SAS HDD / N8150-381 **Others:** Add RHEL6.1 and VMware ESXi 5.0 in the operating systems supported
2.1	January 11, 2012	**New products added:** Pentium G630 / N8101-527F **Discontinued products removed:** Pentium G620 / N8101-499F SCSI Controller / N8103-107 **Part number changed:** 160GB SATA HDD / N8150-372 250GB SATA HDD / N8150-373 500GB SATA HDD / N8150-343 **Others:** Correct incorrect information in internal drive configuration using 3TB 3.5-inch SATA drive
2.0	December 14, 2011	**New products added:** 3TB HDD / N8150-339 **Discontinued products removed:** 1GB Memory Kit / N8102-415F
1.2	August 17, 2011	**Others:** Correct incorrect product name and part number for storage controller and RAID BBU in section 4.2.3 Remove section for External Tape / RDX Drives Add the note for the on-board SATA controller
1.1	August 3, 2011	**Others:** Correct incorrect description for 8GB Memory Kit
1.0	July 28, 2011	Initial release